## REMARKS/ARGUMENTS

Favorable reconsideration of this application as presently amended and in light of the following discussion is respectfully requested.

Claims 1-6, 8-10, and 12-22 are pending in this application. Claims 1, 2, 4, 9, and 12-15 are amended, Claim 7 is cancelled, and Claims 19-22 are added by the present amendment.

Amendments to Claims 1, 4, 12, and 15 find support in the original application at least in Claim 7, and the specification at page 9, lines 3-23, amendments to Claims 2, 9, and 13 find support in the original application at least at page 34, lines 22-25, and new Claims 19-22 find support in originally filed Claims 3, 10, 13, and 14. Thus, no new matter is added.

In the outstanding Office Action, Claims 1, 4, 5-7, and 15 were rejected under 35 U.S.C. § 103(a) as unpatentable over Carlborg et al. (U.S. Publication 2003/0078050, herein "Carlborg") in view of Takihiro et al. (U.S. Patent 6,278,712, herein "Takihiro"); Claims 3, 10, and 14 were rejected under 35 U.S.C. § 103(a) as unpatentable over Carlborg, Takihiro and Atarashi et al. (U.S. Publication 2002/0159470, herein "Atarashi"); Claims 2, 9, and 13 were rejected under 35 U.S.C. § 103(a) as unpatentable over Carlborg in view of Atarashi; Claim 12 was rejected under 35 U.S.C. § 103(a) as unpatentable over Carlborg in view of Chen et al. (U.S. Patent 5,923,650, herein "Chen"); Claims 16-18 were rejected under 35 U.S.C. § 103(a) as unpatentable over Carlborg, Takihiro, and Cain (U.S. Patent 6,982,987); and Claim 8 was allowed.

Applicants thank the Examiner for the indication of allowable subject matter.

Further, Applicants respectfully traverse the rejection of Claims 1, 4, 5-7, and 15 under 35 U.S.C. § 103(a) as unpatentable over Carlborg in view of Takihiro, with respect to amended independent Claims 1, 4, and 15.

Amended Claim 1 is directed to a resource allocating method in a radio packet communication system. The method includes, in part, transmitting a reservation signal from a mobile station to a base station, the reservation signal containing priority level information about a priority level of communication, and setting in the base station (i) a length of a reserved time for allocation of a resource, as a reserved time length, and (ii) a start time of the reserved time, based on the priority level information in the transmitted reservation signal. Further, the method includes setting a start time of a reserved time corresponding to a low priority in the priority level information to be earlier than a start time of a reserved time corresponding to a high priority in the priority level information. Independent Claims 4 and 15 directed to a base station and a system, respectively, include elements configured to perform similar functions.

Applicant's Figure 2 is a block diagram of a non-limiting embodiment of portions of a communication system according to the independent claims. In this example, a mobile station 13 includes a control signal generator 27 that is configured to generate a reservation signal containing priority level information about each data packet fed from a packet generator 28, and a base station 11, which receives the reservation signal, includes a signal analyzer 34 that analyzes the contents of the reservation signal and outputs the results to an allocation determining part 38, which is configured to set a length and start time of a reserved time based on the received priority level information.

Further, as discussed in the specification at page 8, line 15, to page 9, line 22, a length of a reserved time corresponding to a low priority may be shorter (e.g., shorter duration) than a length of a reserved time corresponding to a high priority. In addition, the resource allocating method or apparatus of this example may be configured so that the reservation start time in the resource allocation reserving step is set at a shorter time after the reception time (i.e., earlier in time) for a low priority level than for a high priority level, based on the priority level information in the reservation signal. Thus, by starting the reservation time of the shorter, lower priority communication to take place before or earlier than the longer, it becomes feasible to allocate resources to low priority communication without hindering high priority communication.[1]

Applicants respectfully submit that Carlborg and Takihiro fail to teach or suggest each of the features of independent Claims 1, 4, and 15. For example, it is respectfully submitted that Carlborg and Takihiro fail to teach or suggest setting a start time of a reserved time corresponding to a low priority in the priority level information to be earlier than a start time of a reserved time corresponding to a high priority in the priority level information.

Carlborg describes a wireless communication system that exchanges data between a wireless network element 104 and a remote wireless unit 102, as shown in Figure 1. According to Carlborg, the remote wireless unit 102 sends a resource reservation request 122 to the wireless network element 104, and the wireless network element 104 sends back a reservation response 124 for reserving a time for communication with the remote wireless unit 102. Prior to the reserved time for communication between the remote wireless unit 102 and the wireless network element 104, according to Carlborg, the wireless network element 104 sends a call-back notification signal 126, and the remote wireless unit 102 has the opportunity to send a call back response 128 to the wireless network element 104 to confirm that a communication will take place.

The resource reservation request 122 includes one or more interface resource reservation parameters 115, which are shown in Figure 5 of Carlborg as being a user ID, position data, bit rate, time, quality of service, and duration of call. However, Carlborg does not teach or suggest that the start time of the reserved time set by the base station is based on the priority level information in the reservation signal transmitted from the mobile station, as required by amended Claims 1, 4, and 15.

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[1] Specification at page 9, lines 13-22.

Carlborg discloses that a future time that is reserved by the wireless network element 104 for the remote wireless unit 102 is based on the air interface resource reservation parameters 115, one of which is priority data associated with a plurality of air interface resource reservation parameters.[2] Carlborg further states that the priority data "associated with a plurality of air interface resource reservation parameters may include, for example, one or more data bits indicating which of the air interface resource reservation parameters receives priority in a renegotiation in the event of a conflict."[3] In other words, the priority data of Carlborg merely indicates which of the elements 500-510 shown in Figure 5 has priority when there is a conflict, and Carlborg does not refer to the claimed priority level information for transmitting data.

Further, as Carlborg fails to suggest or describe setting the start time based on priority information in a reservation message, Carlborg also fails to teach or suggest setting a start time to be earlier or later than another start time based on different priorities in the reservation message.

Applicants respectfully submit that Takihiro also does not teach or suggest the features of the independent claims lacking in the disclosure of Carlborg.

Takihiro describes a network and reservable switching node, in which reservation of a network resource can be performed in consideration of priority and cost of a communication.[4] In particular, Takihiro indicates that a system may provide service according to different service classes, for example class A for guaranteed communication rate, and class B for guaranteed communication quantity.[5] Further, Takihiro divides each class into at least two priorities (e.g., A is "priority", A- is "non-priority", B is "priority" and B- is "non-priority").[6] Further, according to Takihiro, a user sets a desired date and time of a communication start and end,[7] and Takihiro allocates resources to communication requests in order of class and priority, giving resources ***first*** to A communication requests, ***then*** allocating the left over or remaining resources to A- communication requests, ***then*** allocating remaining resources to B communication requests, and so on.[8] Takihiro also indicates that "even when necessary resources are short, by invalidating the reservation of the resource used for communication having lower reservation priority, the network can preferentially reserve the resource used for a communication having higher reservation priority."[9] In addition, Takihiro indicates that "by giving the reservation priority, an important communication can be preferentially reserved."[10]

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[2] Carlborg at Abstract.
[3] Carlborg at paragraph [0016]
[4] Takihiro at Abstract.

In other words, Takihiro allocates communication requests with higher priority first and lower priority requests second, so that high priority requests are sent before communication requests with lower priority. Thus, Takihiro fails to teach or suggest allocating a start time for communication at a lower priority to be earlier than a start time for communications at a higher priority. Further, Applicants submit that Takihiro fails to allocate a reserved time region based on priority information. Thus, Takihiro also fails to teach or suggest allocating a resource based on priority information.

Moreover, Applicants note that Takihiro describes a technology that cancels reservation in non-priority level if reservation in priority level is received in an empty resource. That is, Tahikiro describes a cancellation process, which is different than the claimed inventions. An embodiment of a resource allocation method according to the claimed inventions may not allocate resources for non-priority levels when a reservation signal for reservation in non-priority level is received and a resource for a non-priority level is used up. Therefore, the claimed inventions do not require a cancellation process for reservation in priority level.

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[5] Takihiro at column 9, lines 38-45, and column 9, line 63 to column 10, line 3.
[6] Takihiro at column 9, lines 55-57.
[7] Takihiro at column 9, lines 52-55.
[8] Takihiro at column 11, line 35 to column 12, line 27, and FIGS. 9-11.
[9] Takihiro at column 3, lines 18-22.
[10] Takihiro at column 16, lines 26-27.

Accordingly, it is respectfully submitted that Carlborg and Takihiro, whether taken individually or in combination, fail to teach or suggest setting "a start time of a reserved time corresponding to a low priority in the priority level information to be earlier than a start time of a reserved time corresponding to a high priority in the priority level information," as required by independent Claims 1, 4, and 15.

Therefore, Applicants respectfully submit that independent Claims 1, 4, and 15, and claims depending therefrom, patentably define over Carlborg and Takihiro.

Thus, it is respectfully requested the rejection of Claims 1, 4, 5-7, and 15 be withdrawn.

In addition, Applicants respectfully traverse the rejection of Claim 12 under 35 U.S.C. § 103(a) as unpatentable over Carlborg in view of Chen, with respect to amended Claim 12.

Claim 12 is amended to recite a mobile station that transmits and receives packet data and that includes a reservation signal transmitting unit and a transmission rate changing unit. The reservation signal transmitting unit is configured to transmit a reservation signal containing priority level information indicating a priority of the packet data, and the transmission rate changing unit changes a transmission rate according to the priority level information in the reservation signal.

Applicants respectfully submit that Carlborg and Chen, whether taken individually or in combination, fail to teach or suggest each of the features of amended Claim 12. For example, it is respectfully submitted that Carlborg and Chen fail to describe or suggest a reservation signal including priority level information and a transmission rate changing unit that changes a transmission rate based on priority level information in the reservation signal.

The outstanding Office Action indicates that Carlborg fails to teach the claimed reservation signal, and asserts that Chen, at column 13, lines 22-32, supplies the teachings lacking in Carlborg. The cited portion of Chen indicates that a remote station 6 "may be required to provide information to channel scheduler 12 concerning its current transmit power, it [sic] maximum transmit power, and its capabilities more frequently."[11] In other words, Chen indicates that current transmit power, maximum transmit power, and "capabilities" are sent to a channel scheduler 12 (e.g., base station), and Chen does not indicate that any priority information is sent in a reservation signal from the remote station 6 (e.g., mobile station) to the channel scheduler 12 (e.g., base station). Further, it is respectfully submitted that Chen fails to teach or suggest combining priority level information with power information (either current power or maximum power) to change a transmission rate. Thus, it is respectfully submitted that Carlborg and Chen fail to teach or suggest "a transmission rate changing unit configured to change a transmission rate according to a resource set based on the maximum transmit power information, the priority level information, and the transmit power information in the reservation signal," as required by Claim 12.

Accordingly, Applicants respectfully submit that Claim 12 patentably defines over Carlborg and Chen.

Therefore, it is respectfully requested the rejection of Claim 12 also be withdrawn.

Further, Applicants respectfully traverse the rejection of Claims 3, 10, and 14 under 35 U.S.C. § 103(a) as unpatentable over Carlborg, Takihiro and Atarashi. Claims 3 and 10 depend from Claims 1 and 4, respectively, which are believed to patentably define over

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[11] Chen at column 13, lines 30-33.

Carlborg and Takihiro, as discussed above. Further, Claim 14 depends from Claim 12, which is believed to patentably define over Carlborg and Chen as discussed above. Moreover, it is respectfully submitted that Takihiro also fails to describe or otherwise suggest any combination of maximum power, current power, and priority of data to change a transmission rate.

Accordingly, it is respectfully requested the rejection of Claims 3, 10, and 14 also be withdrawn.

Moreover, Applicants respectfully traverse the rejection of Claims 2, 9, and 13 under 35 U.S.C. § 103(a) as unpatentable over Carlborg in view of Atarashi, with respect to amended independent Claims 2, 9, and 13.

Claim 2 is directed to a resource allocating method in a radio packet communication system in which a mobile station transmits a reservation signal including priority level information indicating a priority of packet data to be communicated. The method includes, in part, designating a spreading code to be allocated to the mobile station based on the priority level information in the reservation signal and indicating the priority of the packet data.

As discussed above, Carlborg describes which of the elements 500-510 in Carlborg Figure 5 has priority when there is a conflict, and Carlborg does not indicate or describe a priority level for transmitting data. Further, Applicants respectfully submit that Atarashi fails to supply the features lacking in the disclosure or Carlborg.

Atarashi describes a packet transmitting method in which predetermined time slots are assigned to a reserved packet transmission in regard to a spreading code.[12] In particular, Atarashi indicates that, in response to changes in traffic amount,[13] the base station assigns a time slot and a spreading code to a mobile unit in response to a reservation demand packet

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[12] Atarashi at Abstract.
[13] Atarashi at paragraph [0016].

(e.g., reservation signal).[14] For example, Atarashi indicates that the base station changes the spreading code assigned in response to a reservation demand packet according to a number of reservation demand packets received from the mobile station during a predetermined period.[15] In other words, Atarashi indicates that spreading codes are allocated based on traffic load, and Atarashi does not indicate that spreading codes are selected based on a priority of data to be communicated.

Accordingly, it is respectfully submitted that Carlborg and Atarashi fail to teach or suggest "the base station designates a spreading code to be allocated to the mobile station . . . based on the priority level information in said reservation signal and indicating the priority of the packet data," as recited in independent Claim 2, and as similarly recited in independent Claims 9 and 13.

Therefore, it is respectfully submitted that independent Claims 2, 9, and 13 patentably define over Carlborg and Atarashi.

Thus, Applicants respectfully request the rejection of Claims 2, 9, and 13 be withdrawn.

Further, Applicants respectfully traverse the rejection of Claims 3, 10, and 14 under 35 U.S.C. § 103(a) as unpatentable over Carlborg, Takihiro, and Atarashi.

Claims 3, 10, and 14 depend from Claims 2, 9, and 13, which as discussed above are believed to patentably define over Carlborg and Atarashi. Further, it is respectfully submitted that Takihiro fails to supply the features of Claims 2, 9, and 13 lacking in the disclosures of Carlborg and Atarashi. Thus, it is respectfully requested that rejection also be withdrawn.

In addition, Applicants respectfully traverse the rejection of Claims 16-18 under 35 U.S.C. § 103(a) as unpatentable over Carlborg, Takihiro, and Cain.

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[14] Atarashi at paragraph [0030].

[15] Atarashi at paragraph [0035].

Claim 16 is directed to a resource allocating method in a radio packet communication system. The method includes, in part, transmitting a reservation signal containing priority level information, setting a first reserved time region when a priority level is high, setting a second reserved time region when a priority level is low, allocating the first reserved time region when a resource is available for allocation of the first reserved time region, and allocating the second reserved time region when a resource is available for the second reserved time region. Further, the method requires that the first reserved time region includes the second reserved time region. Independent Claims 17 and 18 are directed to a base station and a system, respectively, including elements configured to perform similar functions.

Applicants respectfully submit that Carlborg, Takihiro, and Cain fail to teach or suggest each of the features of independent Claims 16-18, and Applicants respectfully traverse the assertion in the Office Action that Takihiro "discloses . . . said first reserved time includes the second reserved time region (figure 2, reservation priority level 518, figure 9, a reserved communication time for priority level 1 "priority", a reserved communication time for priority level 2 "non priority")(col. 2, lines 66-67, col. 3, liens 18-32, lines 65-67, col. 8, line 50, col. 11, lines 23-30."[16] On the other hand, Applicants respectfully point out that the cited portions of Takihiro merely indicate that communications with higher priority are transmitted before communications with lower priority, and it is submitted that Takihiro is silent regarding a first reserved time period that ***includes*** a second reserved time period. That is, Takihiro indicates an order of allocation of resources according to classes and priority/non-priority designations, allocating resources in order from high priority to low priority, and Takihiro is silent regarding the inclusion of one reserved time period in another reserved time period. Further, Applicants respectfully submit that Carlborg and Cain also fail to supply the features lacking in the disclosure of Takihiro.

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[16] Office Action at page 14, last full paragraph.

Accordingly, it is respectfully requested the rejection of Claims 16-18 also be withdrawn.

Therefore, Applicants respectfully submit that independent Claims 1, 2, 4, 8, 9, 12, 13, and 15-18, and claims depending therefrom, are allowable.

Consequently, in light of the above discussion and in view of the present amendment, the present application is believed to be in condition for allowance and an early and favorable action to that effect is respectfully requested.

Respectfully submitted,

OBLON, SPIVAK, McCLELLAND,
MAIER & NEUSTADT, P.C.

Bradley D. Lytle
Attorney of Record
Registration No. 40,073

Zachary S. Stern
Registration No. 54,719

Customer Number
22850

Tel: (703) 413-3000
Fax: (703) 413 -2220
(OSMMN 03/06)
BDL:ZSS\yst
I:\ATTY\ZS\24'S\243\243516US\243516US-AM.122807.DOC